VPA PERMIT PROGRAM FACT SHEET

This document gives pertinent information concerning the issuance of the VPA permit listed below. The permit authorizes the land application of biosolids and water treatment plant (WTP) residuals on agricultural and silvicultural land in Orange County without a point source discharge to surface waters, in accordance with the Virginia Pollution Abatement Permit Regulation 9VAC25-32.

1. **Owner Name and Address**:
   Synagro Central, LLC
   10647 Tidewater Trail
   Champlain, VA 22438

2. VPA Permit Name: **Synagro Central LLC - Orange County**

   VPA Permit No: **VPA00075**

   Expiration Date: **May 5, 2025**

3. SIC Code(s): **0711 - Soil Preparation Services**

4. Facility Contact:
   Steve McMahon
   Senior Technical Services Director
   804-443-2170
   smcmahon@synagro.com

5. Permit Application Information:
   Modification with the addition of land (<50%) of a Virginia Pollution Abatement permit authorizing the land application of biosolids and WTP residuals.

Initial Permit Application submitted by:	**Synagro Central LLC**
Application receipt date:	**August 25, 2015**
Additional information requested:	**July 12, 2016**
Additional information received:	**September 2, 2015; October 23, 2015; December 2, 2015; March 28, 2016; May 3, 2016; July 5, 2016**
Application complete date:	**August 11, 2016**

6. Permit Processing Information:		
DEQ Regional Office:		**Central**
Site Inspection performed by:		**John Thompson**
Date of site inspections:		**November 5, 2015; March 30, 2016, July 21, 2016**
Date of public meeting for permit application*:		**Not required for this permit modification**
Dates of public comment period*	**From:**	**August 25, 2016**
	To:	**September 26, 2016**
Permit drafted by:		**John Thompson**
Date permit drafted:		**July 20, 2016**
Draft permit reviewed by:		**Neil Zahradka, Christina M Wood**
Date draft permit reviewed:		**7/22/2016**

*****Adjacent resident notice and comment period

7. Permit Characterization:

Permit Action	Facility	Permit Type
☐ Issuance	☒ Existing facility	☒ Biosolids land application
☐ Reissuance	☐ Proposed facility	☐ Biosolids Composting
☐ Revocation and reissuance	☐ Treatment Works	☐ Biosolids distribution and marketing
☒ Owner modification	☐ Biosolids Routine Storage	☐ Land application/storage of animal waste
☐ Staff initiated modification	☐ N/A	☐ Land treatment of wastewater
☐ Interim authorization	**Type of Facility**	☐ Industrial
☐ Enforcement action	☐ Municipal	☐ Municipal
☐ Revised VPA Permit Regulations	☐ Industrial	☐ Land application of industrial sludge
	Ownership	☒ Land application of water plant residuals
	☐ Public	☐ Land application of septage*
	☒ Private	☐ Water reclamation and reuse
	☐ Federal	
	☐ State	

* Pump and haul of wastewater other than sewage. Pump and haul of sewage is regulated by the Virginia Department of Health in accordance with the Sewage Handling and Disposal Regulations (12VAC5-610).

8. Annual permit maintenance fee: ***$100.00***

9. Licensed Operator Requirements: ***Certified Land Appliers required onsite during land application activities***

10. Reliability Class: ***N/A***

11. Pollution Management Activity Description:
Land application of Biosolids and WTP Residuals to agricultural and silviculatural sites, as identified in the permit application. Application rates shall be in accordance with site specific nutrient management plans.

	Orange County		
Permit Action	*# of Sites*	*# of Fields*	*TOTAL GROSS ACRES:*
Permit Issuance	***14***	***108***	***2,482.4***
Modification #1[1] – 9/XX/2016	***4***	***41***	***585.9***
TOTAL :	***18***	***148***	***3,063.3***

[1] – Modification includes splitting field OR01-07 into two fields, the renumbering of the OR22 site, removal of OR83-02 (5.0 ac.), the addition of OR83-09, and the addition of four new sites.

12. Location Description:
Site maps were provided with the permit application(s) and are available for review upon request. See Attachment A of the permit for Land Application Field and Site Listing and Appendix A of this Fact Sheet for Site Location Map.

13. Compliance Schedules.

EVENT:	***DUE BY:***
Odor Control Plan	***TBD***
BSMP	***TBD***

14. Public Notice Information per 9VAC 25-32-140.B:

No public notice of the draft permit is required due to modification consisting of addition of land <50%.

Adjacent landowner notifications were mailed on August 25, 2016 allowing. Adjacent landowners were allowed 30 days from receipt of the notification to provide comments on the permit modification.

15. Basis for Limits and Monitoring Requirements.

A. Basis for Limitations and Monitoring Requirements in Part I.A.

Part I.A.1.a. Metals Limitations

Monitoring Type: Biosolids and Water Treatment Plant (WTP) Residuals (Biosolids/WTP Residuals) Monitoring
Monitoring Location: Final biosolids and/or WTP residuals product after all treatment, prior to land application

PARAMETER[1]	BASIS FOR LIMITS	LIMITATIONS		MONITORING REQUIREMENTS	
		Monthly Average[2]	Maximum[2]	Frequency	Sample Type
Total Arsenic (mg/kg)	1,2,3,4,5,7	41	75	(5)	Composite
Total Cadmium (mg/kg)	1,2,3,4,5,7	39	85	(5)	Composite
Total Copper (mg/kg)	1,2,3,4,5,7	1,500	4,300	(5)	Composite
Total Lead (mg/kg)	1,2,3,4,5,7	300	840	(5)	Composite
Total Mercury (mg/kg)	1,2,3,4,5,7	17	57	(5)	Composite
Total Molybdenum (mg/kg)	1,2,3,4,5,7	NA[3]	75	(5)	Composite
Total Nickel (mg/kg)	1,2,3,4,5,7	420	420	(5)	Composite
Total Selenium (mg/kg)	1,2,3,4,5,7	100	100	(5)	Composite
Total Zinc (mg/kg)	1,2,3,4,5,7	2,800	7,500	(5)	Composite
Total Aluminum (mg/kg)[4]	6	NL	NA	1/Year	Composite

NL = No Limitation, Monitor and Report
NA = Not Applicable
mg/kg = milligrams/kilogram

(1) All parameters are subject to pollutant concentrations (PC), cumulative pollutant loading rates (CPLR), and ceiling limitations. PC biosolids contain the parameters identified above at concentrations below the monthly average specified in Part I.A.1. CPLR biosolids contain the parameters identified above at concentrations above the monthly average and each sample must be below the ceiling limitations specified in Part I.A.1. If the concentration of any of these parameters in biosolids from any source exceeds the monthly average concentration, then the biosolids from the source are subject to CPLR rules (Part I.A.1.b., Part I.C.3., and Part I.I.16.). [Basis 1 & 7]

(2) All limits and criteria are expressed on a dry weight basis. [Basis 1]

(3) The monthly average concentration for molybdenum is currently under study by USEPA. Research suggests that a monthly average Molybdenum concentration below 40 mg/kg may be appropriate to reduce the risk of copper deficiency in grazing animals. [Basis 4]

(4) Aluminum monitoring is required for WTP residuals only. All WTP residuals generated at a WTP that uses any aluminum based coagulant are subject to aluminum monitoring and the tracking of the aluminum loading at each field on which WTP residuals are applied. [Basis 6]

(5) Permit Part I.A.3. (9VAC25-32-358.A.1, Table 1) [Basis 5]

Basis for Limitations
1. 9VAC25-32-356.
2. 9VAC25-32-356, Table 1
3. 9VAC25-32-356, Table 2
4. 9VAC25-32-356, Table 4
5. 9VAC25-32-358.A.1, Table 1
6. Guidance Memorandum (GM) No. 95-002
7. 9VAC25-32-313.C. & F.

Part I.A.1.b. Site Specific Metals Loading Limitations

Monitoring Type: Biosolids/WTP Residuals Monitoring (only applicable to biosolids subject to Cumulative Pollutant Loading Rates (CPLRs)

Monitoring Location: Calculated for each land application field where biosolids subject to CPLRs or WTP residuals are land applied

PARAMETER	BASIS FOR LIMITS	LIMITATIONS CPLR[2]		MONITORING REQUIREMENTS	
		(kg/ha)[3]	(lb/A)[3]	Frequency	Sample Type
Total Arsenic	1	41	36	Each Application	Calculated
Total Cadmium	1	39	35	Each Application	Calculated
Total Copper	1	1,500	1,340	Each Application	Calculated
Total Lead	1	300	270	Each Application	Calculated
Total Mercury	1	17	16	Each Application	Calculated
Total Molybdenum	1	NL[4]	NL[4]	Each Application	Calculated
Total Nickel	1	420	375	Each Application	Calculated
Total Selenium	1	100	89	Each Application	Calculated
Total Zinc	1	2,800	2,500	Each Application	Calculated
Total Aluminum[1]	2	4,570	4,113	Each Application	Calculated

kg/ha = kilogram/hectare
lb/A = pounds/Acre

(1) All sites that receive WTP residuals containing aluminum are subject to the tracking of aluminum loading, regardless of concentration of aluminum in the residuals. [Basis 3]

(2) The CPLR is the maximum cumulative application of trace elements that can be applied to soils used for crop production. The maximum cumulative application rate is limited for all ranges of cation exchange capacity due to soil background pH in Virginia of less than 6.5 s.u. and lack of regulatory controls of soil pH adjustment after biosolids application ceases. [Basis 4 & 5]

(3) All limits and criteria are expressed on a dry weight basis in kg/ha and lb/A. [Basis 6]

(4) The maximum cumulative application is currently under study by USEPA. Research suggests that for Molybdenum a cumulative pollutant loading rate below 40 kg/ha may be appropriate to reduce the risk of copper deficiency in grazing animals. [Basis 1]

Basis for Limitations

1. 9VAC25-32-356, Table 3
2. EPA Process Design Manual - Land Treatment of Municipal Wastewater (EPA 625/1-81-013)
3. GM No. 95-002
4. 9VAC25-32-313.C. & F.
5. 9VAC25-32-356.B.
6. 9VAC25-32-356.A.

Part I.A.1.c. Pathogen Reduction Requirements

Monitoring Type: Biosolids Monitoring
Monitoring Location: Final biosolids product after all treatment, prior to land application

BASIS FOR LIMITS	PATHOGEN REDUCTION ALTERNATIVE	PROCESS TO SIGNIFICANTLY REDUCE PATHOGENS (PSRP) OPTION	CLASS B PATHOGEN REDUCTION TREATMENT STANDARDS	MONITORING REQUIREMENTS
1,2,3,4,5	1	NA	Fecal coliform monitoring: <2,000,000 MPN/gm or <2,000,000 CFU/gm, geometric mean of seven samples. (9VAC25-32-675.B.2.)	(1),(3)
1,2,3,4,5	2	1	PSRP: Aerobic Digestion: Sludge mean cell residence time from 40 days at 20˚C to 60 days at 15˚C. (9VAC25-32-675.D.1.)	(2)
1,2,3,4,5	2	2	PSRP: Air dry in a drying bed for three months. Ambient average daily temperature must be above 0˚C for two of the three months. (9VAC25-32-675.D.2.)	(2)
1,2,3,4,5	2	3	PSRP: Anaerobic digestion for a mean cell residence time between 15 days at 35˚C - 55˚C up to 60 days at 20˚C. (9VAC25-32-675.D.3.)	(2)
1,2,3,4,5	2	4	PSRP: Composting at 40˚C or above for five or more days, maintaining > 55˚C for four consecutive hours during the five days. (9VAC25-32-675.D.4.)	(2)
1,2,3,4,5	2	5	PSRP: Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 s.u. after two hours of contact. (9VAC25-32-675.D.5.)	(2)
1,2,3,4,5	3	PROCESS AS APPROVED	Process equivalent to PSRP: PROCESS AS APPROVED (9VAC25-32-675.B.4.)	(2)

(1) Between sampling events, operating records must demonstrate that the Wastewater Treatment Plant (WWTP) is operating at a performance level known to meet pathogen reduction standards. [Basis 1 & 5]
(2) Process monitoring must be sufficient to demonstrate compliance with PSRP treatment requirements. [Basis 1-3 & 5]
(3) Permit Part I.A.3 (9VAC25-32-358.A.1, Table 1). [Basis 4]

Basis for Limitations
1. 9VAC25-32-357.A. – B.
2. 9VAC25-32-675.B.
3. 9VAC25-32-675.D.
4. 9VAC25-32-358.A.1, Table 1
5. Environmental Regulations and Technology - Control of Pathogens and Vector Attraction Reduction in Sewage Sludge (EPA/625/R-92/013)

Part I.A.1.d. Vector Attraction Reduction (VAR) Requirements

Monitoring Type: Biosolids Monitoring
Monitoring Location: Final biosolids product after all treatment, prior to land application

BASIS FOR LIMITS	VAR OPTION	VECTOR ATTRACTION REDUCTION TREATMENT STANDARD	MONITORING REQUIREMENTS
1,2,3,4	1	38% Reduction of volatile solids by digestion. (9VAC25-32-685.B.1.)	(3),(1)
1,2,3,4	2	When 38% reduction is not achieved by anaerobic digestion, 40 day bench study at temperatures between 30°C and 37°C to demonstrate further reduction of volatile solids <17%. (9VAC25-32-685.B.2.)	(3),(1)
1,2,3,4	3	When 38% reduction is not achieved by aerobic digestion, 30 day bench study at 20°C to demonstrate further reduction of volatile solids <15%. (9VAC25-32-685.B.3.)	(3),(1)
1,2,3,4	4	Specific Oxygen Uptake Rate of ≤ 1.5 mg O_2/hour/gram total solids at 20°C (aerobically processes sludge). (9VAC25-32-685.B.4.)	(3),(1)
1,2,3,4	5	14 day aerobic process, temperatures above 40°C with an average temperature of >45°C. (9VAC25-32-685.B.5.)	(2)
1,2,3,4	6	Sufficient alkaline material is added to the sewage sludge to raise the pH of the sewage sludge to 12 s.u. after two hours of contact and maintain a pH of 11.5 s.u. or higher for an additional 22 hours. (9VAC25-32-685.B.6.)	(2)
1,2,3,4	7	Where biosolids do not contain unstabilized solids from primary wastewater treatment, the percent solids of the biosolids shall be ≥ 75%. (9VAC25-32-685.B.7.)	(3),(1)
1,2,3,4	8	Where biosolids contain unstabilized solids from primary wastewater treatment, the percent solids of the biosolids shall be ≥ 90%. (9VAC25-32-685.B.8.)	(3),(1)
1,2,3,4	9	Sewage sludge shall be injected below the surface of the land. (9VAC25-32-685.B.9.)	NA
1,2,3,4	10	Sewage sludge land applied shall be incorporated into the soil within six hours after application. (9VAC25-32-685.B.10.)	NA

(1) Between sampling events, operating records must demonstrate that the WWTP is operating at a performance level known to meet the VAR standards. [Basis 1-4]
(2) Process monitoring must be sufficient to demonstrate compliance with VAR treatment requirements. [Basis 1-4]
(3) Table 1; Permit Part I.A.3 (9VAC25-32-358.A.1). [Basis 3]

Basis for Limitations
1. 9VAC25-32-357.A. & D.
2. 9VAC25-32-685.
3. 9VAC25-32-358.A.1, Table 1
4. Environmental Regulations and Technology - Control of Pathogens and Vector Attraction Reduction in Sewage Sludge (EPA/625/R-92/013)

Part I.A.1.e. Biosolids Characteristics

Monitoring Type: Biosolids/WTP Residuals Monitoring
Monitoring Location: Final Biosolids and/or WTP Residuals product after all treatment, prior to land application

PARAMETERS	LIMITATIONS		MONITORING	
	Monthly Average	Minimum and Maximum	Frequency	Sample Type
Percent Solids (%)	NL	NA	(2)	Composite
Volatile Solids (%)	NL	NA	(2)	Composite
Total Kjeldahl Nitrogen (mg/kg)(1)	NL	NA	(2)	Composite
Ammonium Nitrogen (mg/kg) (1)	NL	NA	(2)	Composite
Nitrate Nitrogen (mg/kg) (1)	NL	NA	(2)	Composite
Total Phosphorus (mg/kg) (1)	NL	NA	(2)	Composite
Total Potassium (mg/kg) (1)	NL	NA	(2)	Composite
pH (s.u.)	NA	NL	(2)	Composite
Alkalinity as $CaCO_3$ (mg/kg) (If lime by weight is less than 10%)	NL	NA	(2)	Composite
CCE as $CaCO_3$ (%) (If lime by weight is 10% or more)	NL	NA	(2)	Composite

CCE = Calcium Carbonate Equivalent

(1) Expressed on a dry weight basis. [Basis 1]
(2) Permit Part I.A.3 (9VAC25-32-358.A.1, Table 1) [Basis 2]

Basis for Limitations
1. 9VAC25-32-356.A.
2. 9VAC25-32-358.A.1, Table 1

Part I.A.1.f. Nutrient Loading Rates

Monitoring Type: Biosolids/WTP Residuals Monitoring
Monitoring Location: Nutrient loading rates shall be calculated for each source of Biosolids and/or WTP Residuals land applied and each application of Biosolids and/or WTP Residuals to an application

	LIMITATIONS				MONITORING	
PARAMETERS	Concentration (lb/Dry Ton)	Field Application Rate	12 Month Field Loading	NMP Application Rate	Frequency	Sample Type
Biosolids/Residuals (Dry/Tons/A)	NA	(1)	(1)	(1)	Each application	Calculated
Plant Available Nitrogen	NL	(1)	(1)	(1)	Each application	Calculated
Phosphate (P_2O_5) (lb/A)	NL	(1)	(1)	(1)	Each application	Calculated
K_2O (lb/A)	NL	(2)	(2)	(3)	(2),(3)	Calculated
$CaCO_3$ (lb/A)	NL	(1),(4)	(4)	(5)	(4),(5)	Calculated

(1) The field application rate and 12 month field loading shall not exceed the application rate specified in the nutrient management plan (NMP) for the application method used.
(2) Report the amount of K_2O provided by the biosolids/residuals and supplemental K_2O applied for each application where the soil test K is < 38 ppm Mehlich I.
(3) Report the K_2O application rate recommended in the NMP for each application where the soil test K is < 38 ppm Mehlich I.
(4) Report the amount of $CaCO_3$ provided by the biosolids/residuals and supplemental $CaCO_3$ applied for each application where the soil test pH is < 5.5 s.u.
(5) Report the $CaCO_3$ application rate recommended in the NMP for each application where the soil test pH is < 5.5 s.u.

Basis for Limitations
1. 9VAC25-32-560.B.3.a.
2. 9VAC25-32-100.B.3.a.
3. 9VAC25-32-410.

Part 1.A.2 Soil

Monitoring Type: Soils Monitoring
Monitoring Location: All land application sites prior to land application

PARAMETER[1],[2]	BASIS FOR LIMITS	LIMITATIONS[3],[4]	MONITORING REQUIREMENTS	
			Frequency[5]	Sample
Soil pH (s.u.)	1,2,3	NL	Prior to Biosolids Application ***	Composite
Available Phosphorus (Mehlich I - P)* (ppm)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Potassium (Mehlich I – K)**(ppm)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Calcium (mg/100g)	1,2	NL	Prior to Biosolids Application	Composite
Extractable Magnesium (mg/100g)	1,2	NL	Prior to Biosolids Application	Composite
Zinc (mg/kg)	1,2	NL	Prior to Biosolids Application	Composite
Manganese (mg/kg)	1,2	NL	Prior to Biosolids Application	Composite

ppm = parts per million
mg/100g = milligrams/100grams

* Available Phosphorus shall be analyzed using Mehlich I or Mehlich III analytical procedure. If sample is analyzed using Mehlich III, results shall be converted to Mehlich I for reporting purposes.
** Extractable Potassium shall be analyzed using Mehlich I analytical procedure or equivalent. If sample is analyzed using an equivalent procedure, results shall be converted to Mehlich I for reporting purposes.
*** For biosolids with cadmium concentration greater than or equal to 21 mg/kg the soil pH sample must be less than one year old.

(1) Soil pH, available phosphorus, and extractable potassium monitoring results shall be included in the monthly report as required in Part I.B.1.a.
(2) Soil samples shall be collected and analyzed in accordance with regulations promulgated under § 10.1-104.2 of the Code of Virginia and as outlined in the Biosolids Management Plan (BSMP).
(3) All parameters except for pH shall be monitored on a dry weight basis.
(4) Results of the soil monitoring specified above shall be used to develop the NMP in accordance with Part I.D.2.
(5) No sample analysis used to determine application rates shall be more than three years old at the time of the biosolids land application.

Basis for Limitations
1. 9VAC25-32-460.A. – C, Table 1
2. 9VAC25-32-560.B.2.e.
3. 9VAC25-32-560.B.2.c.

Part 1.A.3 Frequency of Monitoring

Monitoring Type: Biosolids
Monitoring Location: Generator Facility

a. Frequency of sampling biosolids from each generator is based on the amount of biosolids produced by that generator that is land applied. [Basis 1]

AMOUNT OF BIOSOLIDS[(1)] (dry tons per 365-day period)	FREQUENCY*
Greater than zero but less than 320	Once per year
Equal to or greater than 320 but less than 1,653	Once per quarter (four times per year)
Equal to or greater than 1,653 but less than 16,535	Once per 60 days (six times per year)
Equal to or greater than 16,535	Per month (12 times per year)
Note: Either the amount of bulk biosolids applied to the land or the amount of sewage sludge received by a person who prepares biosolids that is sold or given away in a bag or other container for application to the land (dry weight basis).	

b. WTP residuals shall be monitored once per year. [Basis 2]

Basis for Limitations
1. 9VAC25-32-358.A. – B, Table 1.
2. GM No. 95-002

B. Basis for Special Conditions

Tabulated below are the special condition sections of the permit, with the Basis for each of the permit special conditions.

Special Condition	Description and Basis for Special Condition
Part I.B.1.	**Monthly Reporting:** 9VAC25-32-360.A. and Fee Regulation 9VAC25-20-147.B. requires submittal of a report by the 15th of the month following the month in which land application occurred. 9VAC25-32-100.B.2. provides for DEQ to establish the reporting frequency based on the pollutant management activity.
Part I.B.1.a.	**Biosolids/WTP Residuals Monitoring Data:** 9VAC25-32-80.I. states that monitoring results shall be reported at the intervals specified in the applicable VPA permit in a format acceptable to the board. 9VAC25-32-100.B.1. – 2. provides for the VPA permit to require monitoring at a frequency sufficient to yield data representative of the activity and report at a frequency based on the pollutant management activity.
Part I.B.1.b.	**Generator NANI:** 9VAC25-32-313.G. requires the generator of biosolids who provides biosolids to a land applier, to give notice and necessary information to the land applier.
Part I.B.1.c.	**Monthly Activity Report:** 9VAC25-32-360.A. and Fee Regulation 9VAC25-20-147.B. requires submittal of a report by the 15th of the month following the month in which land application occurred. Specific information to be provided is identified in 9VAC25-20-147.A. – B.
Part I.B.1.d.	**Electronic Submittal Attestation Statement:** § 59.1-479 – 498, the Uniform Electronic Transactions Act provides for submission of paperwork electronically and the use of electronic signatures. No laws or regulations require hard copy submittal of original signatures in the VPA program.

Part I.B.2.	**Land Application Fee:** § 62.1-44.19.3.P. requires that a fee be charged to the generator of biosolids to be land applied in Virginia. The fees of $7.50/dry ton of Class B biosolids and $3.75/dry ton of EQ cake biosolids land applied in the Commonwealth of Virginia is established by the Fee Regulation 9VAC25-20-146. and 9VAC25-20-40.A.3. 9VAC25-20-40.A.3. and 9VAC25-20-146. also establish a fee of $5.00/dry ton industrial residuals (this includes WTP residuals) land applied in a county that has adopted an ordinance for the testing and monitoring of industrial residuals accordance with § 62.1-44.16 D of the Code of Virginia. Exemptions to the fee are provided in 9VAC25-20-50.C. 9VAC25-20-60.D. establishes the due date.
Part I.B.3.	**Annual Report:** 9VAC25-32-360.B. requires the submittal of an annual report postmarked by February 19th for the previous year. 9VAC25-32-100.B.3. provides for the VPA permit to require monitoring the volume of biosolids and other measurements as appropriate. 9VAC25-32-360.C. requires reports be maintained verifying that sludge treatment for pathogen and vector attraction reduction be maintained by the generator and owner (of the permit). 9VAC25-32-80.G. requires the permittee to submit information requested by the board, within a reasonable time, to determine compliance with the permit.
Part I.C.1.	**Records Retention:** 9VAC25-32-80.H.2. specifies that all records of biosolids activities, monitoring and reporting shall be maintained for at least five years.
Part I.C.2.	**Class B/PC Biosolids Record Keeping:** 9VAC25-32-359. provides specific recordkeeping requirements for PC and CPLR biosolids.
Part I.C.3.	**Class B/CPLR Biosolids Record Keeping:** 9VAC25-32-359. provides specific recordkeeping requirements for PC and CPLR biosolids.
Part I.D.1.	**Biosolids Management Plan (BSMP):** 9VAC25-32-410. requires the permit holder to maintain and implement a BSMP consisting of permit application, NMPs and O&M manual and states that the BSMP is an enforceable part of the permit.
Part I.D.2.	**Nutrient Management Plan (NMP) Requirement:** § 62.1-44.19.3.C.8. requires that a NMP be developed by a person certified in accordance with § 10.1-104.2 for each biosolids land application site, prior to application of biosolids at the site. The statute also establishes conditions where the NMP must be approved by the Department of Conservation and Recreation prior to submittal at the time of permit application. 9VAC25-32-410.C.2. states that if conditions at the site change so that it meets one or more special conditions, the NMP will be approved prior to application at the site. 9VAC25-32-410.C.2, with which all biosolids operations must comply, requires that the NMP be submitted to the farmer/operator of the site, the Department of Conservation and Recreation, and the local government, unless requested in writing to not receive the NMP. 9VAC25-32-410.C.5, Table 1 requires the NMP to be approved by DCR prior to application based on soil phosphorus levels (Mehlich I).
Part I.D.3.	**Operation and Maintenance (O&M) Manual Requirement:** 9VAC25-32-410.D. and 9VAC25-790-260 – 300. identify minimum requirements to be included in an O&M Manual. Additional requirements are included in the BSMP 9VAC25-32-60.F.3.
Part I.D.4.	**Odor Control Plan (OCP) Requirement:** 9VAC25-32.60.F.1. requires Generator's OCP and minimum content. 9VAC25-32-60.F.5.c. requires Land Applier's OCP and minimum content.

Part I.D.5.	**Permittee Source List - Biosolids/WTP Residuals:** 9VAC25-32-305.D. states *no person shall land apply, market, or distribute biosolids in Virginia unless the biosolids source has been approved by the board.* 9VAC25-32-60.F.1. requires that a list of sources that the permittee proposes to land apply in the permit application, which is part of the BSMP. Water Control Law and the VPA Permit Regulation do not require a permit modification to add a new source; therefore a source that is approved may be added to the Permittee Source List with administrative authorization. A source not previously or currently approved, must obtain approval before it can be land applied under a VPA permit.
Part I.E.1.	**100 Day Notification:** 9VAC25-32-515.A.1. requires written notification to the chief executive officer (CEO) or designee for the locality 100 days prior to the initial land application at a specific site and clarifies that the notice may be satisfied by DEQ's notice of the permit application, if necessary site information was provided in that notification.
Part I.E.2.	**14 Day Notification:** § 62.1-44.19.3.L. and 9VAC25-32-515.A.2. requires written notification to the department and the CEO or designee for the locality at least 14 days prior to land application at a specific site.
Part I.E.3.	**Sign Posting:** 9VAC25-32-515.B.1. requires a sign be posted at a land application site at least five business days prior to delivery of biosolids at the site and maintained on site until five business days after application is complete; the sign will not be removed until 30 days after land application is complete. 9VAC25-32-515.B.1.a. – b. addresses placement of the signs. 9VAC25-32-515.B.3. – 4. specifies construction, content, and maintenance of the sign.
Part I.E.4.	**Notification of Sign Posting:** 9VAC25-32-515.B.2. requires written notification to DEQ and the CEO or designee for the locality within 24 hours of posting, identifying where the signs have been posted, and identifies information required in the notice.
Part I.E.5.	**24 Hour Notification:** 9VAC25-32-515.A.3. requires written notice to DEQ and the CEO or designee for the locality no more than 24 hours prior to commencing activity at a site, including delivery. Include the source of material and only sites where land application activities or staging will commence within 24 hours.
Part I.E.6.	**Site Operator Notification and Information:** 9VAC25-32-313.I. states "*The person who applies bulk biosolids to the land shall provide the owner or lease holder of the land on which the bulk biosolids is applied notice and necessary information to comply with the requirements in this article."*
Part I.F.1. – 6.	**Transport requirements:** 9VAC25-32-540.A. – E. identifies requirements for transport routes, vehicles, prevention of drag-out and track-out, clean-up of such drag-out and track-out and clean-up and reporting of spills.
Part I.G.1. – 11.	**Staging:** 9VAC25-32-545.A. – B. defines staging and provides procedural requirements for staging up to seven days and daily inspections by certified land applier; procedural and notification requirements to be implemented if biosolids cannot be applied by the end of the 7th day; and prohibits overnight staging in areas of Karst topography identified by U.S. Department of Agriculture - Natural Resources Conservation Service (USDA-NRCS) as frequently flooded, and sites with on-site storage.

Part I.H.1. – 3.	**On-site storage Requirements:** 9VAC25-32-550.D.1., 3. - 10. describes on-site storage and provides procedural requirements for staging up to 45 days, routine inspections by certified land applier; procedural and notification requirements; 9VAC25-32-550.D. specifies on-site storage shall take place on a constructed surface at a location preapproved by DEQ and that biosolids stored on the site shall be land applied only at sites under control of the owner/operator of the site where the on-site storage is located; 9VAC25-32-550.C., D.2. & 6. specifies permeability requirements for the pad and requires existing storage facilities to come into compliance with the amended regulation by 9/1/2014.
Part I.I.1.	**Infrequent Application:** 9VAC25-32-560.B.3.c. establishes infrequent application based on total crop needs for nitrogen.
Part I.I.2.	**Depth to Bedrock or Restrictive Layers:** 9VAC25-32-560.B.2.a. states depth to bedrock or restrictive layers shall be a minimum of 18 inches.
Part I.I.3.	**Depth to Groundwater:** 9VAC25-32-560.B.2.b. prohibits land application when seasonal high water table is within 18" of ground surface and requires use of USDA-NRCS soil survey maps and soil borings to verify groundwater depth.
Part I.I.4.	**pH Management:** 9VAC25-32-560.B.2.c. requires the biosolids soil mixture have a pH of 6.0 s.u. or higher where cadmium in the biosolids is ≥ 21 mg/kg. 9VAC25-32-560.B.2.d. requires the addition of lime or use of lime amended biosolids if soil pH is < 5.5 s.u.
Part I.I.5.	**Soil Potassium < 38 ppm:** 9VAC25-32-560.B.2.e. requires addition of potash prior to or concurrently with the biosolids if the soil potassium (Mehlich I) is < 38 ppm.
Part I.I.6.	**Equipment Calibration:** 9VAC25-32-560.B.3.d.(1) requires routine measurement of the field application rate of application equipment.
Part I.I.7.	**Liquid Biosolids/WTP Residuals:** 9VAC25-32-560.B.3.d.(1) limits application of liquid biosolids to 14,000 gallons per acre, per application, with drying time between applications.
Part I.I.8.	**Grass Height:** 9VAC25-32-560.B.3.d.(1) requires hay and pasture to be grazed or clipped to approximately six inches prior to biosolids application.
Part I.I.9.	**Uniform Application:** 9VAC25-32-560.B.3.d.(1) requires a uniform application of biosolids on a field. If application is not uniform additional operational methods are required followed by clipping.
Part I.I.10.	**Odor Control by Incorporation:** 9VAC25-32-560.B.3.d.(2) allows DEQ or the local monitor to require incorporation, when practical or compatible with a soil conservation plan, to mitigate malodor.
Part I.I.11.	**Slope Restrictions:** 9VAC25-32-560.B.3.d.(3) prohibits application on slopes >15%, but allows the restriction to be waived by DEQ for the establishment and maintenance of perennial vegetation or based on BMPs.
Part I.I.12.	**Snow Covered Ground:** 9VAC25-32-560.B.3.d.(5) allows land application of biosolids on snow cover that is one inch or less in depth and the snow and biosolids are incorporated within 24 hours. If the snow melts with application, incorporation is not required.

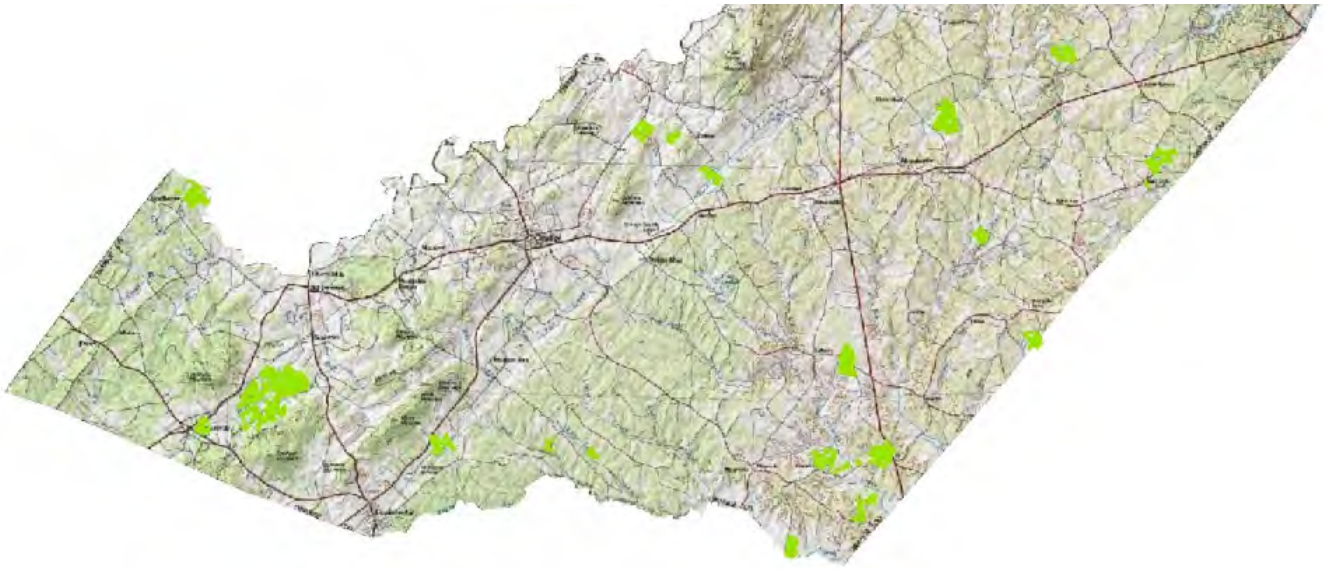
Part I.I.13.	**Setbacks:** 9VAC25-32-560.B.3.e.(1) – (4) establishes setback distances and procedures for extending or waiving residential and property line setbacks.
Part I.I.14.	**Site Access Restrictions:** 9VAC25-32-675.B.5. establishes access restrictions for sites where Class B biosolids have been land applied.
Part I.I.15.	**Forestland (Silviculture):** 9VAC25-32-560.C. establishes requirements for land application on silvicultural sites.
Part I.I.16.	**CPLR Biosolids:** 9VAC25-32-313.F. establishes criteria for determining the need to track the metals loadings on individual sites where metals subject to the cumulative pollutant loading rates have been applied.
Part I.J.1.	**Biosolids/WTP Residuals Sources:** 9VAC25-32-305.D. states that no person shall land apply, market or distribute biosolids in Virginia unless the biosolids source has been approved by the board.
Part I.J.2.	**Land Application Sites:** 9VAC25-32-305.C. states that no person shall land apply Class B biosolids on any land in Virginia unless that land has been identified in an application to issue, reissue or modify a permit and approved by the board.
Part I.J.3.	**Pollution Liability and General Liability Requirement:** 9VAC25-32-780. establishes liability requirements. 9VAC25-32-790. – 850. provides specific requirements for each type of liability demonstration.
Part I.J.4.	**Alteration of Biosolids Composition:** 9VAC25-32-560.A.2. prohibits the alteration of the biosolids composition at the land application site.
Part I.J.5.	**Site Specific Application Rates:** 9VAC25-32-560 states site specific application rates shall not exceed the rates established in the nutrient management plan nor result in exceedance of the cumulative trace element loading rates specified in 9VAC25-32-356, Table 3.
Part I.J.6.	**Land Owner Consent Requirement:** 9VAC25-32-60.D.4. requires the submission of landowner consent forms with the permit application. 9VAC25-32-530.B.2. requires the written agreement between the permittee and the landowner, specifies required information and use of the most current form approved by the board. 9VAC25-32-530.A. requires the permittee to maintain the agreement.
Part I.J.7.	**Threatened and Endangered Species Protection:** 9VAC25-32-313.B. states no one shall apply bulk biosolids to the land if it is likely to adversely affect a threatened or endangered species listed in 9VAC25-260-320. or § 4 of the Endangered Species Act (16 USC § 1533) or if the land application is likely to adversely affect its designated critical habitat.
Part I.J.8.	**Certified Land Applicator Requirement:** § 62.1-44.19.3.1.B. states that Class B biosolids shall not be land applied unless a certified land applicator is onsite at all times during the application. 9VAC25-32-690. requires the land applier to maintain a field log and identifies minimum requirements and sign monthly reports, attesting that they were onsite at all times reported.
Part I.J.9.	**Reopener:** 9VAC25-32-220. allows a permit to be opened when a change is made in the promulgated standards or regulations on which the VPA permit was based.

Part I.J.10.	**Storm Water Discharge Exception:** 9VAC25-32-30.A. states that all pollutant management activities covered under a VPA permit shall maintain no point source discharge of pollutants to surface waters except in the case of a storm event greater than the 25-year, 24-hour storm.
Part I.J.11.	**Materials Handling/Storage:** 9VAC25-32-30.B. states that except in compliance with the VPA or another permit issued by the board that it is unlawful to discharge into, or adjacent to, state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances.
Part II.	**CONDITIONS APPLICABLE TO ALL VPA PERMITS:** VPA Permit Regulation 9VAC25-32-80. requires all VPA permits to contain or specifically cite the conditions listed.

17. Attachments to the permit:
    Part I.K. - Attachment A – Description of Land Application Sites
    Fact sheet - Appendix A – Map of Land Application Sites
    Site Books - Six site books submitted at the time of permit application which includes site specific information.

APPENDIX A
Site Location Map and Site Listings

SYNAGRO CENTRAL LLC – ORANGE COUNTY



LISTING OF LAND APPLICATION SITES

SYNAGRO CENTRAL, LLC – ORANGE COUNTY

Site Book Name	Field ID	Gross Acres	DEQ Control Number	Notes
W.D. Harris	OR01-01	17.8	51137-00577-0000	
W.D. Harris	OR01-02	29.0	51137-00576-0000	
W.D. Harris	OR01-03	24.3	51137-00578-0000	
W.D. Harris	OR01-04	21.4	51137-00579-0000	
W.D. Harris	OR01-05	21.6	51137-00580-0000	
W.D. Harris	OR01-06	38.9	51137-00582-0000	
W.D. Harris	OR01-07D	43.0	51137-00581-0000	
W.D. Harris	OR01-07E	18.0	51137-00581-0000	
Thomas E. Graves, Jr.	OR05-01	47.9	51137-00542-0000	
Thomas E. Graves, Jr.	OR05-02	29.3	51137-00555-0000	
Thomas E. Graves, Jr.	OR05-03	19.8	51137-00556-0000	
Thomas E. Graves, Jr.	OR05-04	23.6	51137-00553-0000	
Thomas E. Graves, Jr.	OR05-05	15.5	51137-00554-0000	
Thomas E. Graves, Jr.	OR05-06	20.5	51137-00551-0000	
Thomas E. Graves, Jr.	OR05-07	5.7	51137-00552-0000	
Thomas E. Graves, Jr.	OR05-08	8.6	51137-00550-0000	
Thomas E. Graves, Jr.	OR05-09	32.8	51137-00549-0000	
Thomas E. Graves, Jr.	OR05-10	14.2	51137-00543-0000	
Thomas E. Graves, Jr.	OR05-11	25.3	51137-00544-0000	
Thomas E. Graves, Jr.	OR05-12	50.3	51137-00545-0000	
Thomas E. Graves, Jr.	OR05-13	26.2	51137-00547-0000	
Thomas E. Graves, Jr.	OR05-15	29.4	51137-00546-0000	
Thomas E. Graves, Jr.	OR05-16	57.9	51137-00548-0000	
Thomas E. Graves	OR08-01	12.8	51137-00538-0000	
Thomas E. Graves	OR08-02	16.5	51137-00539-0000	
Thomas E. Graves	OR08-03	42.6	51137-00537-0000	
Thomas E. Graves	OR08-04	5.6	51137-00536-0000	
Thomas E. Graves	OR08-05	26.9	51137-00540-0000	
Thomas E. Graves	OR08-06	31.5	51137-00541-0000	
Edward T. Mack	OR09-08	15.0	51137-00606-0000	
Edward T. Mack	OR09-09	22.5	51137-00608-0000	
Edward T. Mack	OR09-10	35.3	51137-00607-0000	
Edward T. Mack	OR09-12	53.4	51137-00610-0000	
Edward T. Mack	OR09-17	39.1	51137-00609-0000	
J. Amberger Properties, LLC	OR13-01	11.1	51137-00265-0000	Double permitted with VPA00060
J. Amberger Properties, LLC	OR13-02	31.4	51137-00266-0000	Double permitted with VPA00060
J. Amberger Properties, LLC	OR13-03	22.9	51137-00650-0000	

Site Book Name	Field ID	Gross Acres	DEQ Control Number	Notes
Joe Funkhouser	OR14-01	22.8	51137-00596-0000	
Joe Funkhouser	OR14-02	15.1	51137-00595-0000	
Joe Funkhouser	OR14-02A	44.3	51137-00597-0000	
Joe Funkhouser	OR14-03	10.3	51137-00585-0000	
Joe Funkhouser	OR14-03A	6.9	51137-00594-0000	
Joe Funkhouser	OR14-04	39.6	51137-00583-0000	
Joe Funkhouser	OR14-05	25.5	51137-00584-0000	
Joe Funkhouser	OR14-06	68.2	51137-00586-0000	
Joe Funkhouser	OR14-07	3.2	51137-00587-0000	
Joe Funkhouser	OR14-08	33.8	51137-00588-0000	
Jor Funkhouser	OR14-09	74.8	51137-00590-0000	
Joe Funkhouser	OR14-10	44.4	51137-00591-0000	
Joe Funkhouser	OR14-11	22.7	51137-00589-0000	
Joe Funkhouser	OR14-12	12.9	51137-00592-0000	
Joe Funkhouser	OR14-13	13.8	51137-00593-0000	
Paul Amberger	OR22-11	24.3	51137-00263-0000	Double permitted with VPA00060.
Paul Amberger	OR22-12	15.7	51137-00262-0000	Double permitted with VPA00060.
Paul Amberger	OR22-13	10.8	51137-00264-0000	Double permitted with VPA00060.
Paul Amberger	OR22-14	29.6	51137-00260-0000	Double permitted with VPA00060.
Paul Amberger	OR22-15	50.9	51137-00258-0000	Double permitted with VPA00060.
Paul Amberger	OR22-16	27.8	51137-00261-0000	Double permitted with VPA00060.
Paul Amberger	OR22-17	24.9	51137-00259-0000	Double permitted with VPA00060.
John Darnell	OR26-34	29.3	51137-00533-0000	
John Darnell	OR26-35	14.1	51137-00535-0000	
Katherine Deane	OR62-01	31.2	51137-00534-0000	
Henry E. Tinder	OR80-01	7.7	51137-00563-0000	
Henry E. Tinder	OR80-02	5.6	51137-00564-0000	
Henry E. Tinder	OR80-03	13.9	51137-00565-0000	
Henry E. Tinder	OR80-04	20.8	51137-00566-0000	
Henry E. Tinder	OR80-05	5.3	51137-00567-0000	
Henry E. Tinder	OR80-06	14.9	51137-00568-0000	
Henry E. Tinder	OR80-07	23.0	51137-00569-0000	
Henry E. Tinder	OR80-08	13.5	51137-00570-0000	
David Allen Colvin	OR81-01	7.9	51137-00571-0000	
David Allen Colvin	OR81-02	12.3	51137-00572-0000	
David Allen Colvin	OR81-03	5.6	51137-00573-0000	
David Allen Colvin	OR81-04	12.3	51137-00574-0000	
David Allen Colvin	OR81-05	19.8	51137-00575-0000	
Harry Shepherd	OR82-01	37.6	51137-00625-0000	
Harry Shepherd	OR82-02	11.8	51137-00628-0000	
Harry Shepherd	OR82-03	11.2	51137-00629-0000	

Site Book Name	Field ID	Gross Acres	DEQ Control Number	Notes
Harry Shepherd	OR82-04	26.8	51137-00626-0000	
Harry Shepherd	OR82-05	18.8	51137-00624-0000	
Harry Shepherd	OR82-06	42.7	51137-00622-0000	
Harry Shepherd	OR82-07	20.6	51137-00623-0000	
Harry Shepherd	OR82-08	14.9	51137-00627-0000	
Harry Shepherd	OR82-09	16.7	51137-00613-0000	
Harry Shepherd	OR82-10	17.9	51137-00616-0000	
Harry Shepherd	OR82-11	38.4	51137-00615-0000	
Harry Shepherd	OR82-15	6.1	51137-00614-0000	
Harry Shepherd	OR82-16	2.7	51137-00612-0000	
Harry Shepherd	OR82-18	31.2	51137-00617-0000	
Harry Shepherd	OR82-19	12.9	51137-00618-0000	
Harry Shepherd	OR82-20	52.8	51137-00619-0000	
Harry Shepherd	OR82-22	29.9	51137-00621-0000	
Harry Shepherd	OR82-23	51.3	51137-00620-0000	
Harry Shepherd	OR82-24	14.3	51137-00611-0000	
Nancy Nagro	OR83-01	35.9	51137-00598-0000	
Nancy Nagro	OR83-03	15.9	51137-00600-0000	
Nancy Nagro	OR83-04	6.6	51137-00601-0000	
Nancy Nagro	OR83-05	9.2	51137-00602-0000	
Nancy Nagro	OR83-06	17.5	51137-00603-0000	
Nancy Nagro	OR83-07	5.7	51137-00604-0000	
Nancy Nagro	OR83-08	17.1	51137-00605-0000	
Bruce Lohr	OR84-01	4.7	51137-00557-0000	
Bruce Lohr	OR84-02	16.2	51137-00558-0000	
Bruce Lohr	OR84-03	7.2	51137-00559-0000	
Bruce Lohr	OR84-04	17.2	51137-00562-0000	
Bruce Lohr	OR84-05	11.7	51137-00560-0000	
Bruce Lohr	OR84-06	16.8	51137-00561-0000	
Modification #1 - September XX, 2016				
Nancy Nagro	OR83-09	14.5	51137-00664-0000	
William T. Nixon	OR95-01	10.6	51137-00651-0000	
William T. Nixon	OR95-02	13.0	51137-00652-0000	
William T. Nixon	OR95-03	5.5	51137-00653-0000	
William T. Nixon	OR95-04	8.7	51137-00655-0000	
William T. Nixon	OR95-05	5.8	51137-00656-0000	
William T. Nixon	OR95-06	4.8	51137-00656-0000	
William T. Nixon	OR95-07	5.8	51137-00656-0000	
William T. Nixon	OR95-08	4.9	51137-00656-0000	
William T. Nixon	OR95-09	6.4	51137-00656-0000	
William T. Nixon	OR95-10	6.2	51137-00654-0000	

Site Book Name	Field ID	Gross Acres	DEQ Control Number	Notes
William T. Nixon	OR95-11	3.5	51137-00661-0000	
Bob Chambers	OR96-01	18.2	51137-00362-0000	Double permitted with VPA00060
Bob Chambers	OR96-02	36.9	51137-00363-0000	Double permitted with VPA00060
Bob Chambers	OR96-03	8.5	51137-00364-0000	Double permitted with VPA00060
Bob Chambers	OR96-04	22.9	51137-00365-0000	Double permitted with VPA00060
Bob Chambers	OR96-05	11.6	51137-00366-0000	Double permitted with VPA00060
Bob Chambers	OR96-06	23.6	51137-00367-0000	Double permitted with VPA00060
Bob Chambers	OR96-07	6.7	51137-00368-0000	Double permitted with VPA00060
Bob Chambers	OR96-08	9.3	51137-00369-0000	Double permitted with VPA00060
Bob Chambers	OR96-09	15.6	51137-00370-0000	Double permitted with VPA00060
Bob Chambers	OR96-10	10.3	51137-00371-0000	Double permitted with VPA00060
Bob Chambers	OR96-11	4.9	51137-00372-0000	Double permitted with VPA00060
Bob Chambers	OR96-12	6.7	51137-00373-0000	Double permitted with VPA00060
Bob Chambers	OR96-13	12.7	51137-00665-0000	
Bob Chambers	OR96-14	9.0	51137-00249-0000	Double permitted with VPA00060
Bob Chambers	OR96-15	19.8	51137-00250-0000	Double permitted with VPA00060
Bob Chambers	OR96-16	14.4	51137-00251-0000	Double permitted with VPA00060
Bob Chambers	OR96-17	37.7	51137-00252-0000	Double permitted with VPA00060
Bob Chambers	OR96-18	22.8	51137-00253-0000	Double permitted with VPA00060
Bob Chambers	OR96-19	10.6	51137-00254-0000	Double permitted with VPA00060
Bob Chambers	OR96-20	4.6	51137-00255-0000	Double permitted with VPA00060
Bob Chambers	OR96-21	15.8	51137-00256-0000	Double permitted with VPA00060
Bob Chambers	OR96-22	5.1	51137-00257-0000	Double permitted with VPA00060
Glenburnie Farm, LLC	OR97-01	14.4	51137-00663-0000	
Glenburnie Farm, LLC	OR97-02	15.1	51137-00663-0000	
Glenburnie Farm, LLC	OR97-03	9.9	51137-00663-0000	
Glenburnie Farm, LLC	OR97-04	18.5	51137-00662-0000	
Glenburnie Farm, LLC	OR97-05	40.0	51137-00663-0000	Silvicultural site
George Yancey	OR98-01	37.4	51137-00666-0000	
George Yancey	OR98-02	33.2	51137-00667-0000	